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(54) Sports hand guard

(57) A hand guard, suitable for use by a hockey goalkeeper, comprises a hand-protecting shell 6 firmly supported on a wrist-protecting cuff 5, the shell 6 having two opposite openings with edges 1 through which a stick handle can pass so that it can be gripped inside the shell by the wearer. The shell 6 may continuously encircle the openings (Figures 4 and 5, not shown), or may have a joint portion 4 to allow the guard to close around the stick, the shell edge 3 abutting a protrusion 2 on the cuff 5, and to allow the hand guard to open to release the stick. The shell may be held closed by a strap 7 forming an internal finger loop.

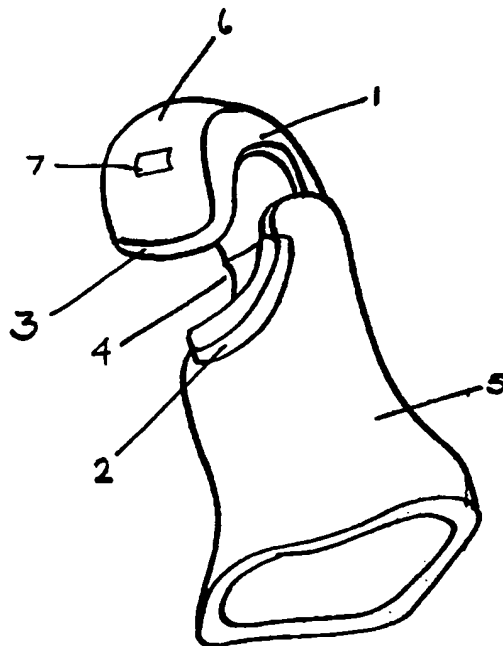


FIG 2

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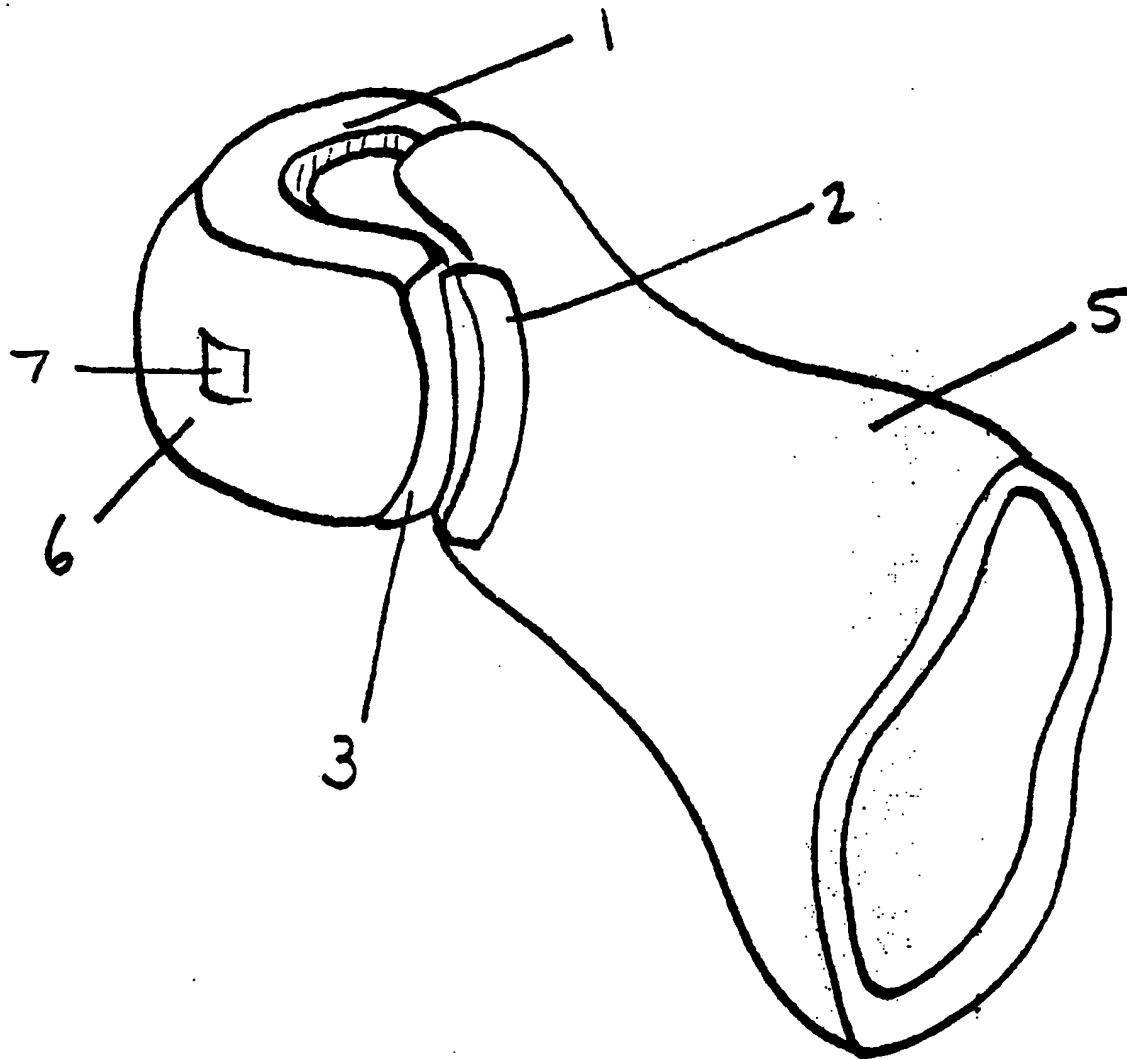


FIG 1.

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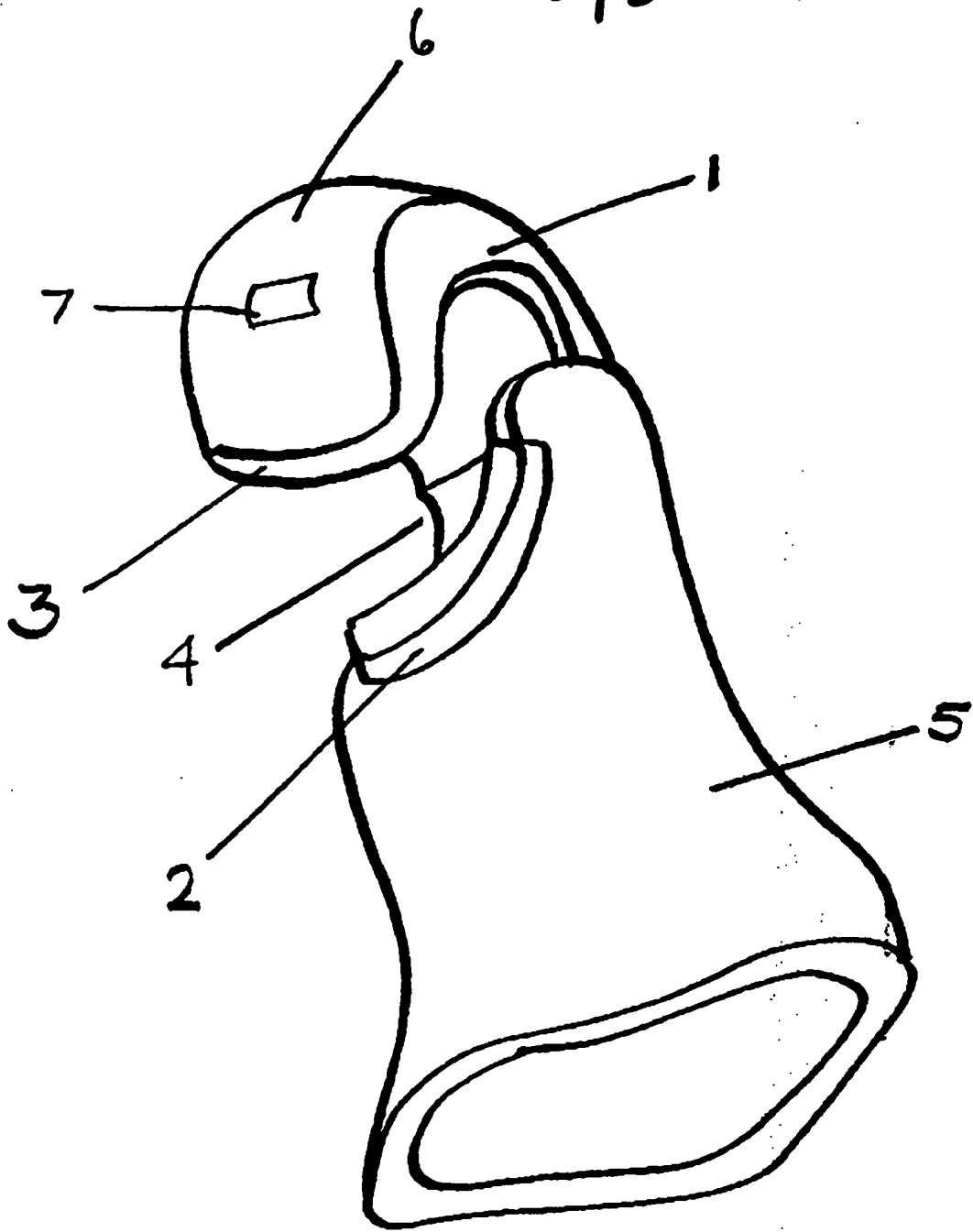


FIG 2

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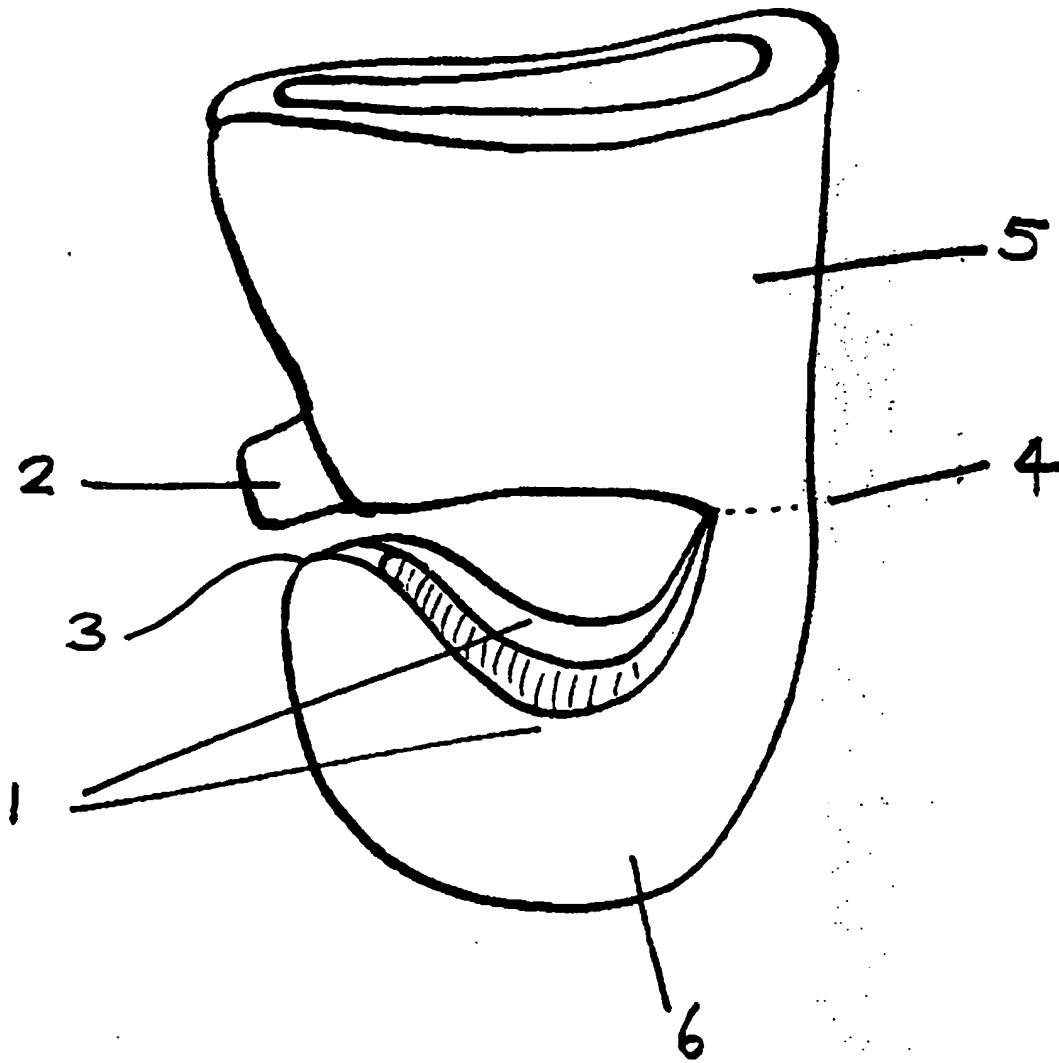


FIG 3

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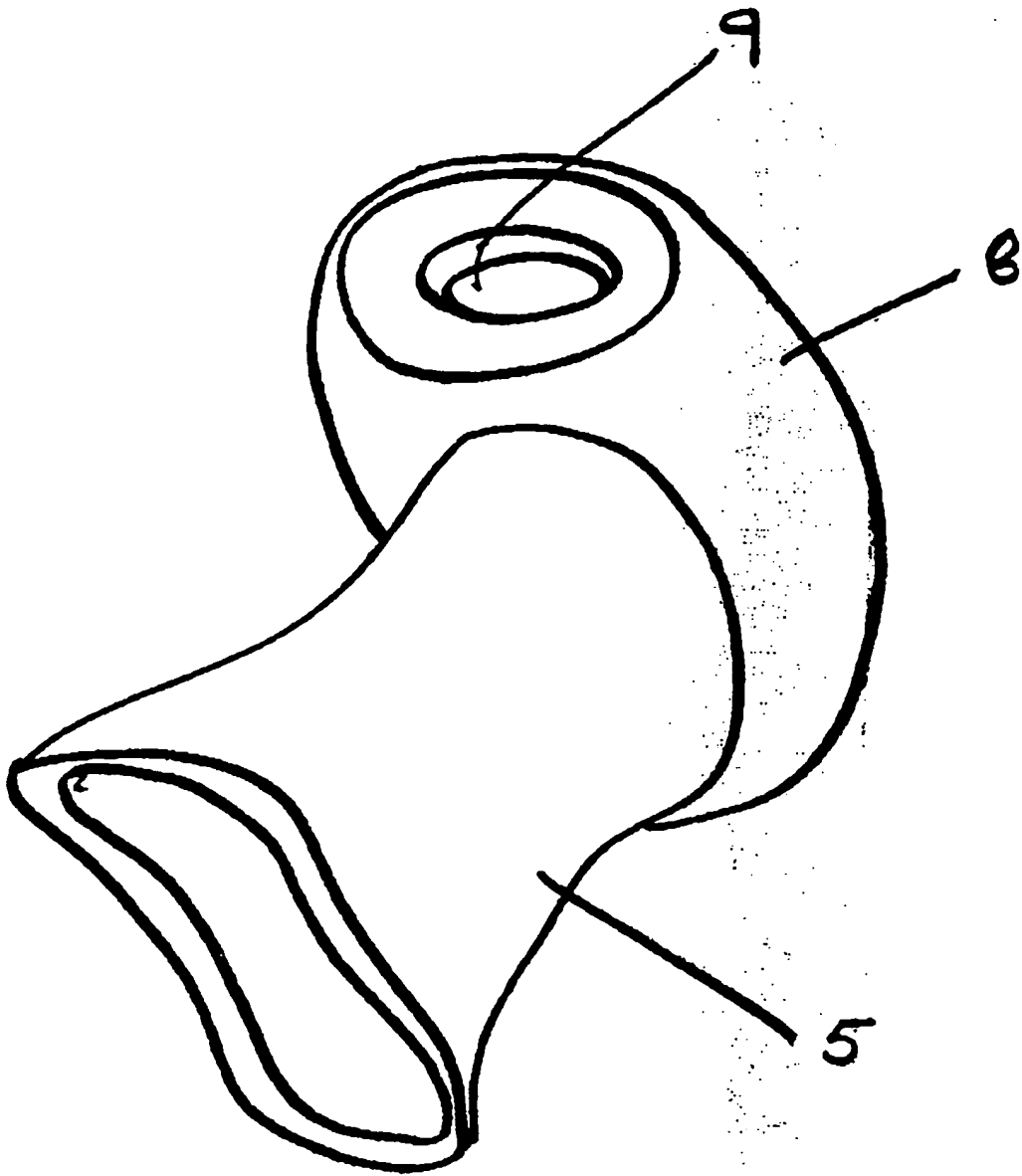


FIG4.

HAND GUARD

This invention relates to a hand guard that is intended primarily but not exclusively for use in sports. In preferred embodiments of the invention, the hand guard provides a protective covering for the hand, wrist and lower forearm of a sports player.

The invention finds particular utility as a sports hand guard to be worn by players of cricket, hockey and other games in which a hand held bat or stick is used to hit a hard fast-moving ball or other object, to protect the player's fingers in particular. The precise form of the invention will be adapted according to the game in which it is to be used. For convenience the following description will be directed mainly to embodiments of the invention suitable for use in field hockey.

In a sport like field hockey, the goalkeeper needs to wear far more protective equipment than outfield players. The goalkeeper's right hand is usually used to grip the player's stick. The present protection offered to this hand against being damaged, by a moving ball or an opponent's stick, is provided in many cases by a conventional four finger and thumb glove with extra thick pockets of padding to protect vulnerable parts of the hand. These gloves are often made of leather.

As the hand is used to grip the player's stick, the hand wraps around the stick handle, which exposes the ends of the fingers and thumb to an impact by a ball which will crush the fingers against the stick. Other vulnerable areas around the hand are the end of the thumb, and the wrist bone, and these too are liable to be struck during play.

The ends of the fingers and the thumb are difficult areas to protect since large pads over these sensitive regions prevent proper gripping of the stick.

It is an object of the present invention to provide protection for a player's fingers, thumb and wrist without unacceptable interference with the gripping of the stick.

According to the invention, a hand guard comprises some or all of the elements and features disclosed in the following description. The scope of the invention extends to all novel aspects of the hand guard whether individually or in combination with other features as described herein.

More specifically, in one aspect of the invention a hand guard, and especially a sports hand guard for players of field games, may comprise a wrist-protecting cuff firmly supporting a hand-protecting shell with an opening for a bat or stick handle to pass into the shell, such that a wearer's hand can enter the shell through the cuff and grasp a said handle inside the shell.

In use, the player's hand passes through the cuff to enter the shell, and the shell is braced by the cuff. The cuff may be continuous around the wrist, although it could equally be split or hinged, to facilitate putting it on or taking it off or adjusting its size to different wearers.

The shell around the wearer's hand can likewise be constructed in different ways, as will be described, but it should always be sufficiently roomy internally that it does not press against the fingers of a player's hand when gripping a stick or bat handle inside the shell.

The shell should be sufficiently rigid to protect the wearer's hand from crush injuries when struck, whether by a ball, a stick or another player, in the course of normal play. The general

principle is that the shell should cover vulnerable parts of the hand, especially the fingers, and that the cuff should provide a firm base so that impact on the shell is transmitted to the cuff, from which the forces of the impact can be distributed over the wearer's forearm, and at least partly absorbed before there is any serious impact of the interior of the shell against the player's hand within.

Two opposite openings are preferably provided in the shell for the stick or bat handle, so that the wearer can grip the handle at any point along its length, and not just at one end. With this arrangement, it may also be found that the edges of the openings bear against the handle under impact, as it extends on either side of the hand, further preventing the hand gripping the handle from being crushed against the handle by the shell.

The hand guard is preferably not absolutely rigid, but may be described as semi-rigid, or self-supporting but resiliently deformable. A certain degree of elasticity is desirable, to improve the absorption of shocks, but it should not be possible to collapse the shell in normal use. Particular flexing may be deliberately permitted in certain regions, whether to improve wearer comfort, to allow specific movements of the hand guard in use as described below, or for any other reason.

The hand guard may be formed of plastics foam material, such as a polyether or polyurethane foam, and preferably a closed cell foam to avoid excessive water absorption. The guard may be hot formed from sheets of mouldable material, over a former or in a mould, or may be originally moulded to the desired shape by carrying out the foam forming reactions within a mould. The structure may be simple or composite, in which case different elements of the hand guard may be formed separately and then joined, and/or some or all parts of the hand guard may be formed from two or more plies of different materials, such as a relatively hard external layer and a relatively soft internal layer.

Two embodiments of the invention will now be described, as examples only, with reference to the accompanying drawings, in which:

Figure 1 is a perspective sketch of a first embodiment of the invention;

Figure 2 is a similar view to Figure 1, showing the hand protecting shell partially open;

Figure 3 is a further perspective view of the same embodiment, from a different aspect; and

Figure 4 and Figure 5 are two sketches of a second embodiment of the invention, in perspective view, seen from different aspects.

The first hand guard, shown in Figures 1-3, comprises a moulded semi-rigid closed cell plastics foam hand guard comprising a wrist-protecting cuff 5 firmly supporting a hand-protecting shell 6.

The shell 6 is provided with two opposite openings defined by curved edges 1 which face corresponding top edges of the cuff 5, to allow a stick handle, not shown, to pass through the "fist" of the hand guard.

The shell 6 does not continuously encircle these openings, but is firmly supported on the cuff 5 at one side thereof by a joint portion 4, while terminating opposite the joint in an edge portion 3 which is normally slightly spaced from the corresponding top edge of the cuff (Figure 3). In addition, an optional protrusion 2 is formed at that top cuff edge to provide a specific abutment for the shell edge 3, and the protrusion 2 and edge 3 are correspondingly curved to assist in the positive location of the latter within the former when the shell is pressed down against the cuff (Figure 1).

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Figure 3 is a further perspective view of the same embodiment, from a different aspect; and

Figure 4 and Figure 5 are two sketches of a second embodiment of the invention, in perspective view, seen from different aspects.

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the hand against the stick. The tube is somewhat barrel shaped, being of a greater diameter towards its centre to accommodate the wearer's fist around the stick handle.

In this embodiment, the stick can only be dropped by allowing it to fall axially out of the shell through one of the openings 9.

It will be appreciated that, although different embodiments of the invention may be used in a variety of different sports, the current official rules of the sport may prevent the use of the hand guard in certain regulated competitions.

CLAIMS

- 1 A sports hand guard comprising a wrist-protecting cuff connected to a hand-protecting shell with an opening for a bat or stick handle to pass into the shell, such that a wearer's hand can enter the shell through the cuff and grasp a said handle inside the shell.
- 2 A field hockey goalkeeper's hand guard comprising a hand protecting shell with an opening for a hockey stick handle to pass into the shell and a wrist-protecting cuff connected to the shell, such that a wearer's hand can enter the shell through the cuff and grasp a said handle inside the shell.
- 3 A hand guard according to claim 1 or claim 2 wherein the shell is supported by the cuff, when worn.
- 4 A hand guard according to any preceding claim wherein the shell is provided with a strap to form an internal loop which can pass around a wearer's finger.
- 5 A hand guard according to any preceding claim wherein the shell continuously encircles the said opening.
- 6 A hand guard according to any of claims 1 to 4 wherein the shell does not continuously encircle the said opening but terminates at an edge portion directed towards an opposite edge portion of the hand guard.
- 7 A hand guard according to claim 6 wherein the said opposite edge portion extends from the cuff.
- 8 A hand guard according to claim 6 or claim 7 wherein the said opposite edge portion is provided with a protrusion to provide a specific abutment for the edge portion of the shell.

- 9 A hand guard according to claim 8 wherein the edge portion of the shell and the protrusion are correspondingly curved.
- 10 A hand guard according to any preceding claim provided with a further opening for a said handle to pass out of the shell.
- 11 A hand guard according to any preceding claim wherein the cuff is continuous around the wrist of a wearer, when worn.
- 12 A hand guard according to any of claims 1 to 10 wherein the cuff is split.
- 13 A hand guard according to any of claims 1 to 10 wherein the cuff is hinged.
- 14 A hand guard according to any preceding claim that is rigid or semi-rigid.
- 15 A hand guard according to claim 14 that includes regions permitting particular flexing.
- 16 A hand guard according to any preceding claim comprising impact-absorbing foam.
- 17 A hand guard according to claim 16 substantially wholly formed of impact-absorbing plastics foam.
- 18 A hand guard according to claim 16 or claim 17 wherein the foam is hot formed closed cell foam.
- 19 A hand guard according to any preceding claim comprising parts formed from two or more plies of different materials.
- 20 A hand guard according to claim 19 comprising a relatively hard external layer and a relatively soft internal layer.

21 A hand guard substantially as herein described with reference to and as illustrated in any of the accompanying drawings.



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Claims searched: 1 to 21

Examiner: Robert Crowshaw
Date of search: 19 August 1996

Patents Act 1977
Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.O): A3V

Int CI (Ed.6): A41D 13/10, A63B 71/14

Other: Online database: WPI

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 520559 (DUNLOP) See especially claim 1 and figure 1.	1, 5, 10, 11
X,E	WO 95/22914 A1 (LINNER) See especially the abstract, and figures 1, 9 and 17.	1, 2, 4, 6, 7, 10, 12, 15

X Document indicating lack of novelty or inventive step
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